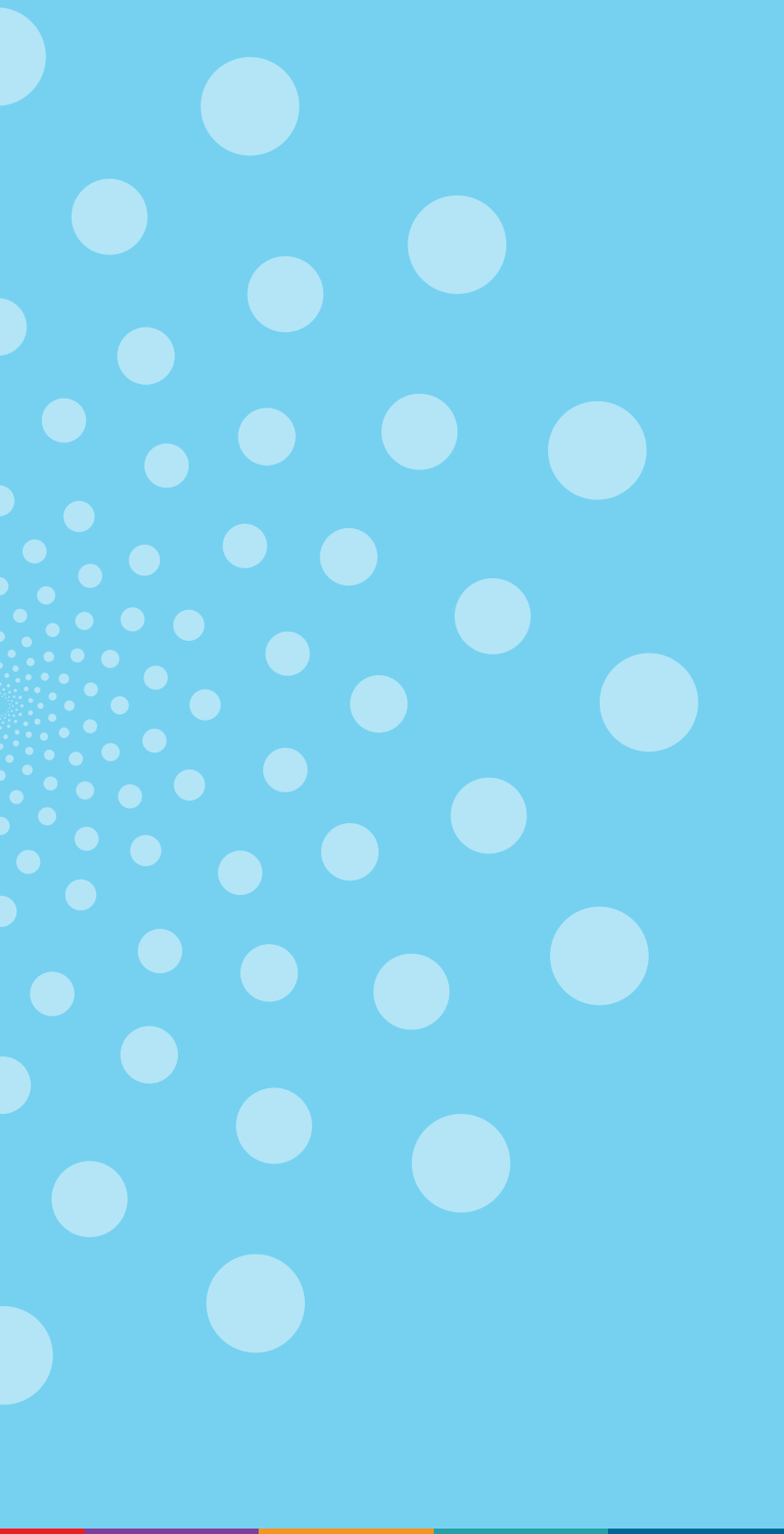




DISTRICT OF COLUMBIA  
PUBLIC SCHOOLS

# Cornerstones SY2015-2016



# About Cornerstones

## What are Cornerstones?

Cornerstones are powerful lessons taught as part of the DCPS curriculum – the lessons students will remember years from now.

Every student in every grade level experiences Cornerstones across each subject (English Language Arts, Math, Science, Art, Music, Physical Education, Health, World Languages and Social Studies).

Cornerstones make meaningful real-world connections through engaging and rigorous content, taught through proven, high-impact instructional models.

## How do Cornerstones engage students?

Deep learning happens when a student is able to understand and retain information by participating in interesting and meaningful activities.

Cornerstones are lessons taught to all students in DCPS. Hands-on activities and real-world connections are used to activate learning of core concepts.

## Example: Ride On!

Every second grade student in DCPS learns how to ride a bike as part of the PE curriculum. The introduction of bikes as fitness equipment is a way to bring fun and excitement to the physical education experience.

The introduction of bike riding as a life skill isn't just an effort to introduce students to a fitness activity. It ties into classroom skills, such as learning to read maps.



## DCPS

Providing all students access to a world-class curriculum.

## Vision

Every DCPS student benefits from challenging, engaging and memorable educational experiences, supported and encouraged by teachers, parents and the greater community.

## ENGAGED STUDENTS

## Mission

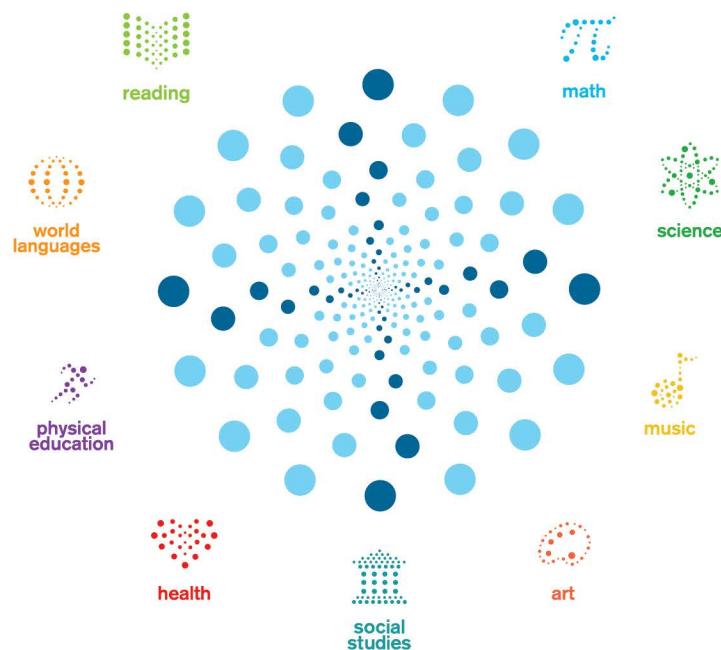
Access for every student to inspiring classroom experiences that connect to the real world and empower every teacher and student to succeed.

## CAPTIVATING CONTENT

## EXCELLENT TEACHERS

## Over 200 Cornerstones

are taught across all grade levels and content areas



## Cornerstones Formula

Cornerstones are the sparks that stimulate learning by bringing great energy to great content, empowering teachers and students to excel.



Cornerstones show students how they can actually apply and use the concepts they learn.

# Elementary School

## **Kindergarten, Language Arts, Cornerstone 1, "How to be a Good Friend and Citizen"**

As part of a unit on friendship and citizenship, students engage in community service to improve their school culture as they develop their reading, research, and writing skills. Using ideas from literature and study of characters, they compile characteristics of good friends and citizens, and then design a school-wide poster display to promote these friendship and citizenship behaviors in their school.

## **Kindergarten, Health and Physical Education, Cornerstone 1, "Growing Vegetable Soup"**

Students have the opportunity to taste new fruits and vegetables, while learning how to sort foods according to their food groups and sources. They preserve the experience by creating a drawing of a fruit or vegetable they enjoyed and identifying whether it is a fruit or a vegetable.

## **Kindergarten, Art, Cornerstone 2, "Contrast"**

Students gain a deeper understanding of how contrast can be used by an artist to alter the way an individual views or experiences an object, animal, or environment. To demonstrate the techniques and skills they've learned, students create a culminating final project which demonstrates contrast.

## **Kindergarten, Language Arts, Cornerstone 2, "Community Workers"**

Students research and interview local workers in their communities, as part of a unit on community workers. They learn how to give an interview, how to record notes, and how to present their research about the worker.

## **Kindergarten, Music, Cornerstone 2, "Improvised Accompaniment"**

Students use instrumentation and movement to provide accompaniment to a teacher-read narrative. To prepare, students learn the basic elements of music through contrasts (loud/soft, high/low, fast/slow). Students hear a familiar story and connect these elements to communicating physical, emotional and dramatic elements of the narrative.

## **Kindergarten, Math, Cornerstone 3, "More Than, Less Than, or Equal To?"**

Students learn how to compare numerals from 1-10 as more than, less than, or equal to another numeral from 1-10. The students learn how to play two games: "The Marble Bag" and "Compare." Then they work in pairs to demonstrate understanding of comparison of numerals in written form.

## **Kindergarten, Science, Cornerstone 4, "Thinking Inside the Box: Designing Plant Packages"**

Students learn about the field of package engineering. The storybook *A Gift from Fadil* sets the scene by introducing two children in Jordan who want to give their older sister a plant from their garden as a wedding gift. Students use their knowledge of plants, their problem-solving skills, and their creativity to design a package that can keep a plant alive and healthy for several days.

## **Grade 1, Language Arts, Cornerstone 1, "Never Give Up: Spotlight on Perseverance"**

Each class creates a digital or physical book for the school library based on their research about literary characters or real people who persevere. Students read multiple texts about characters and people who persevere

in a variety of ways. Each student chooses one of the characters or people and creates a page within a People Who Persevere (digital) classroom book, which will be displayed in the library and shared with other students in the school.

## **Grade 1, Science, Cornerstone 2, "Just Passing Through: Designing Model Membranes"**

Students are challenged to design a membrane for a frog habitat that delivers just the right amount of water. Students learn how membranes function, and then apply their knowledge of the basic needs of living organisms to the engineering design challenge. They learn to think like bioengineers as they design a model membrane to mimic the properties of real membranes in live organisms.

## **Grade 1, Math, Cornerstone 3, "Pan Balance Equations"**

Students work with equally weighted items and a pan scale to better understand the concept of equal. Students model different equations and test them on a pan scale. They then create a poster to explain equations based on their usage of the pan scale. Finally, students create a balance using authentic materials and design a game based on their knowledge of equations from their use of the pan scale.

## **Grade 1, Language Arts, Cornerstone 4, "American Symbols and Contributions"**

Students use their research on an American symbol or historical figure to conduct an oral presentation or speech. To enhance their presentations, students become displays in a "wax museum," in which students embody and act as their chosen symbol or historical icon in wax figure form. When the student's finger is "tapped," they come to life, sharing their speeches and learning with an audience.

## **Grade 2, Science, Cornerstone 1, "The Best of Bugs: Designing Hand Pollinators"**

Students take on the role of agricultural engineers. They apply their knowledge of insects, insect life cycles, pollination, and natural systems as they test a variety of materials, then engineer their own technologies for pollinating plants by hand.

## **Grade 2, Health and Physical Education, Cornerstone 1, "Biking in the Park"**

Students learn to ride a bicycle and prepare for a culminating group ride to the park. As part of the preparation, they learn basic safety procedures including the ability to demonstrate a correct helmet fit, perform a standard bicycle check, use proper hand signals, and identify road signs and the proper clothing to wear.

## **Grade 2, Language Arts, Cornerstone 2, "Then and Now"**

Students contribute to exhibits and serve as tour guides in a school-wide museum on technology and change. Students create a timeline that shows the changes in technology over time.

## **Grade 2, Math, Cornerstone 3, "Map Quest"**

Students create a number line and add and subtract within 100 on their number line. Students demonstrate their understanding of adding and subtracting with a number line to solve clues leading to a hidden treasure.

### **Grade 2, Language Arts, Cornerstone 4, "The Virtual Exchange: Connecting with Mexico and Canada"**

Students engage in a unit of study titled Our Neighbors: A Look Into How Children Around the World Live. This Cornerstone provides an opportunity for classrooms to interact with a student or class from another country. Students create questions that focus on identifying similarities and differences between their lives and other students' lives. These questions are used during an interview via Skype, or a friendly letter, between students. Using their research, students write an informative, comparison piece of writing.

### **Grade 3, Language Arts, Cornerstone 1, "Unlocking D.C."**

Students further their study of Washington, D.C., D.C.'s various monuments, historical and cultural landmarks, and neighborhoods. The Cornerstone provides an opportunity for students to use their research skills to learn about the historical significance of their neighborhood or ward. Utilizing text features and informational text writing, they create a travel guide or webpage to encourage people to visit their community.

### **Grade 3, Math, Cornerstone 1, "Making Up Multiplication"**

Students choose and model their own real-world multiplication situations and compare and discuss their solutions and strategies with peers. Students develop two different strategies for solving each problem.

### **Grade 3, Language Arts, Cornerstone 2, "A Right or a Responsibility"**

Students further their study of democracy by delving into barriers to voting for various social groups in the United States of America past and/or present. The Cornerstone provides an opportunity for students to use their knowledge about voting rights to choose whether they believe voting is a right or a responsibility. After evaluating information from multiple sources, students create a poster encouraging adults to take an active role in government by voting.

### **Grade 3, Math, Cornerstone 2, "Shopping List"**

Students work in groups to solve and represent unknowns in a multiplication and division equation using a "tricky" shopping list. Groups create a poster of their mathematical interpretation of the items described on the list. Students respond to classmates' thinking through a gallery walk of ideas.

### **Grade 3, Science, Cornerstone 2, "A Stick in the Mud: Evaluating a Landscape"**

Students dig into the role of geotechnical engineers, selecting a safe, flood-proof, and erosion-proof location for a new TarPul (innovative cable bridges used in Nepal). Working with a model riverbank, they study soil properties, examine maps to assess the potential for erosion at different sites along the river, and factor in the villagers' preferences for a TarPul location.

### **Grade 3, Art, Cornerstone 3, "Powerful Characters, Powerful Words"**

Students focus on character development and motivation through the art of puppetry. Students create puppets and scenery to express how an individual's motivations, feelings, and actions can alter a course of events. A performance component of this Cornerstone requires students to act out scenarios during which their individual characters interact based on their motivations and feelings.

### **Grade 3, Language Arts, Cornerstone 3, "Powerful Influences"**

Students further their study of how an individual's motivations, feelings, and actions can alter a course of events. The Cornerstone provides an opportunity for students to use their research skills to learn about a hero/heroine and the life events that influenced their heroic actions. After analyzing and synthesizing information from multiple sources, students create a narrative to utilize while impersonating their chosen hero/heroine.

### **Grade 3, Math, Cornerstone 3, "Zoo Graphing"**

Students work in groups to organize, interpret, and represent a given data set about animals. Students create a tally chart, bar graph, and a picture graph of their data. Students also respond to questions for data interpretation. Students then take a field trip to the National Smithsonian's Zoo and create their statistical questions pertaining to the different animal exhibits.

### **Grade 3, Music, Cornerstone 3, "Narrative Compositions"**

Students compose lyrics and melodies based on a chosen narrative. Inspired by a real-life story of a child who created change, students learn how to use patterns of rhyme and meter to compose lyrics. Working with Orff instruments, students also compose a melody for their lyrics in the C pentatonic scale.

### **Grade 3, Language Arts, Cornerstone 4, "Opposites Attract"**

Students further their study of forces in physical science through research of magnetism and electricity. The Cornerstone provides an opportunity for students, working in small groups, to define a simple design problem that can be solved by applying scientific ideas about magnets. Employing a seminar approach, they discuss how their design is the best way to solve the problem.

### **Grade 3, Math, Cornerstone 4, "Additive Area"**

Students work together to determine how to find the area when a figure is not rectangular. They apply their knowledge in a real-life situation by designing a floor plan for their "Dream Bedroom."

### **Grade 4, Art, Cornerstone 1, "Becoming"**

Students engage in close-study of art work as they examine a series of complex images that may surprise or challenge their assumptions of people both similar and different from themselves. Students engage with images of individuals who face obstacles or adversity that contribute to their individual or community development.

### **Grade 4, Language Arts, Cornerstone 1, "What is a Hero?"**

As students continue their study of heroic literature and what it means to be a hero, they begin learning practices of academic student-directed, research-based discussion seminars, which they will use through high school and beyond. Texts from the unit anchor the small group seminar discussion, in which students demonstrate content knowledge, critical thinking, and speaking and listening skills as they apply what they have learned about heroism.

### **Grade 4, Math, Cornerstone 1, "Rounding to the Nearest 1,000"**

Students design a number line that shows placement of numbers. By "zooming in" on the number line, students explore and manipulate the

place value of a number. Students design a poster illustrating a number line, plotting a number, rounding to the nearest 1,000, and explaining rounding.

#### **Grade 4, Music, Cornerstone 1, "Close Study: Listening"**

Students actively listen and identify the elements of music that create the structure of music and explain what they hear using appropriate academic vocabulary. Incorporating their inferences from the close listening, students compare two musical pieces.

#### **Grade 4, Language Arts, Cornerstone 2, "How They Lived: Portraying the Early American"**

Students use their knowledge about early America to create an interactive display that explores the daily life of one group of early Americans (a Native American tribe or early settlers) using writing, visuals, and/or digital technologies.

#### **Grade 4, Math, Cornerstone 2, "Marigolds on the Mall"**

Students use their knowledge of area and perimeter to act as landscape designers for restoration of the National Mall. They select sections of the National Mall where they can visualize planting marigolds. Then, using the dimensions of the created rectangular areas, students determine how many marigolds they would have to purchase to fill the total square footage.

#### **Grade 4, Language Arts, Cornerstone 3, "Speaking Revolution"**

Students continue their study of the American Revolution and America's resulting independence. In this Cornerstone, they demonstrate different perspectives on the American Revolution and American Independence. They perform a dramatic interpretation of a poem, excerpt from a short story, nonfiction text, or a play that captures a perspective of the American Revolution and/or American independence, as well as write a short, 100-word preview about the significance of their text and performance.

#### **Grade 4, Math, Cornerstone 3, "You are a Pastry Chef!"**

Students work in partnerships or groups to present a proposal to purchase ingredients for desserts for a grade-level celebration. They apply their knowledge of operations with whole numbers and fractions to determine the amount of each ingredient needed and its cost for multiple batches of multiple desserts.

#### **Grade 4, Art, Cornerstone 4, "The Movement Project"**

Students study the role that movement plays in the creation of work. They examine a range of techniques used to make marks, both additive and reductive, and the role that forces play on the resulting marks. Concurrently, students examine movement in their world, both forced and natural. They then create works that use mark-making to document movement.

#### **Grade 4, Language Arts, Cornerstone 4, "Rock On!"**

Students create a pamphlet that informs audiences about a particular rock or mineral. Design, self-expression, and active/creative technology use are the hallmarks of this Cornerstone. Students interact with texts and information presented visually through research and presentation. They connect their learning to their own lives through a deep understanding of how a specific rock or mineral is used by society today.

#### **Grade 4, Math, Cornerstone 4, "Money Makes Sense"**

Students demonstrate their understanding of the concept that a dime is  $\frac{1}{10}$  of a dollar and a penny is  $\frac{1}{100}$  of a dollar. Students then create fractions based on different amounts of dimes and pennies, followed by creating decimals from the fractions and from coin amounts.

#### **Grade 4, Music, Cornerstone 4, "Creating a Folk Dance"**

Students are exposed to various folk dances which incorporate multiple movements and formations. Students are given the opportunity to apply these new skills through individual and whole group practice. Finally, students collaborate to compose their own folk dance in small groups and perform them for the class.

#### **Grade 4, Science, Cornerstone 4, "Designing Windmills"**

Mechanical engineering involves the design of anything with moving parts. In this unit, students think like mechanical engineers—and also use their understanding of air as wind—to design and create wind-powered machines. The storybook *Leif Catches the Wind* introduces students to wind turbines that generate renewable energy. Students study how common machines such as mechanical pencils and egg beaters work, then use their mechanical engineering skills to design sailboats and windmills that catch the wind.

#### **Grade 5, Language Arts, Cornerstone 1, "Eureka! Framing the Process of Discovery"**

Students develop a logical argument from a research plan to present a pitch for an invention that solves a practical or abstract problem.

#### **Grade 5, Math, Cornerstone 1, "Decimal Designs"**

Students create and analyze artistic works derived from different representations of decimal numbers. Students create a visual representation of different decimal amounts using tens-frames and hundreds charts, using their favorite color for a portion of the design. They create a riddle for spectators (of a gallery walk) to solve, that identifies their favorite color in mathematical terms.

#### **Grade 5, Language Arts, Cornerstone 2, "Go West!"**

Using information from a variety of texts, students write a summary of their opinion of the importance of Westward Expansion. Students respond in writing to the question, "Was the Westward Expansion Worth It?" In this opinion essay, students state a claim and support it with evidence from the texts.

#### **Grade 5, Math, Cornerstone 2, "Basketball Shootout"**

Students compete in 30-second, in-class basketball shooting competitions to determine the number of shots they can make out of the total attempted. The class then determines its overall fraction of the shots made and the class average.

#### **Grade 5, Language Arts, Cornerstone 3, "Civil War and Reconstruction - The Emancipation Proclamation"**

Students continue to deepen their understanding of the Emancipation Proclamation by closely analyzing the document. Through their examination of the document, students determine the impact that the Emancipation Proclamation had on our nation. Students complete an analysis of the



document and then write an essay to describe its purpose and to explain the impact the Emancipation Proclamation had on our country.

#### **Grade 5, Math, Cornerstone 3, “Baking Brownies”**

Students explore real world applications of multiplication of fractions in order to create an annotated cookbook page with instructions for baking brownies according to given specifications - pan size, batch size, and decorations. Students start the challenging work of interpreting multiplication as scaling by comparing sizes of baking pans. They then multiply fractions within a scaling scenario to adapt a recipe to a different batch size. Finally, students multiply fractions using an area model while decorating actual brownies.

#### **Grade 5, Science, Cornerstone 3, “Teyha’s Pollution Solution”**

An oil spill can be deadly for fish, plants, and other organisms in the river ecosystem. Through the storybook Teyha’s Pollution Solution, students learn about a spill on the Elwha River in the Pacific Northwest. Applying their knowledge of ecosystems and food webs, students test water quality and also the oil-absorbing properties of different materials as they engineer a process for cleaning up an oil spill. This unit introduces students to the field of environmental engineering.

#### **Grade 5, Language Arts, Cornerstone 4, “Civil Rights Movement”**

Students continue their study of the Civil Rights Movement and deepen their understanding of equal rights issues that activists fought to have for all American citizens. Students use several different sources to research information, in collaborative groups, about the Civil Rights Movement, with specific focus on topics around education. Students present their analysis of the impact the Civil Rights Movement had on this nation’s education system, through a collaborative oral and written assignment.

#### **Grade 5, Math, Cornerstone 4, “Aquarium Designs”**

After a brief lesson on how to calculate the volume of rectangular prisms, students design, draw, and build models of one saltwater and one freshwater aquarium for a mock aquarium design contest. Students then write a letter to the director of the aquarium that compares and contrasts the different designs for their aquariums based upon their knowledge of volume.

#### **Elementary, World Languages, Cornerstone 1, “Classroom Passport”**

To gain understanding of the value of each member in their classroom, students explore identities within their diverse classroom community. Using images and the target language, they create a classroom passport with basic biographical and personal information.

#### **Elementary, World Languages, Cornerstone 2, “Friends and Family Scrapbook”**

Students explore the important role that family and friends play in their lives, and examine their relationships through creating a scrapbook or memory book with drawings, pictures, clippings, and mementos that reflects activities, celebrations, or events relevant to them. Using the target language, students label the artifacts.

#### **Elementary, Health and Physical Education, Cornerstone 3, “Tobacco Free is the Way to Be”**

Students create a multimedia anti-tobacco/alcohol advertisement project in

order to demonstrate what they learned about the effects of tobacco and/or alcohol. Students utilize their knowledge and any resources provided by the teacher to create a persuasive advertisement to convince others to abstain from unhealthy practices.

#### **Elementary, World Languages, Cornerstone 3, “Global Friends”**

Students work to enhance their ability to ask and answer questions about themselves and their lives. They understand that studying language can help them communicate with people in other parts of our country and our world. Students create a friendly letter that is added to at the end of each lesson. This friendly letter is used as a guide to help them converse with a native speaker of the language they are studying or a fellow classmate at the end of the unit.

#### **Elementary, Health and Physical Education, Cornerstone 4, “Activity Log”**

Students learn about the major muscles and bones in their body, along with types of exercise and how they relate to fitness. Students complete a one-week activity log and explain the connections to health-related benefits, and the muscles and bones involved in the different types of activities.

#### **Elementary, World Languages, Cornerstone 4, “The Three Little Pigs Skits”**

Students work with their peers to use the target language in dramatic and creative performances. Students use their creativity and knowledge of the target language to add their own spin to the story! Students learn lines and work collaboratively to bring “The Three Little Pigs” to life. Engaging in a performance using the target language, students feel the excitement and fun of fluid interlocution in a different language!

# Middle School

## **Grade 6, Language Arts, Cornerstone 1, "Perspectives on Growing Up"**

Students compare and contrast perspectives on growing up by close reading "Eleven" and "On Turning Ten" as well as conducting an interview with an adult and completing a personal reflection. Students produce an essay that synthesizes the differing points of view on growing up.

## **Grade 6, Health and Physical Education, Cornerstone 1, "Turn Up, Turn Out For Your Community"**

Students demonstrate deeper understanding of bullying and violence by exploring the reasons why people choose these behaviors. They apply this knowledge to resolve issues within their own school and community, by advocating for a solution through a campaign.

## **Grade 6, Math, Cornerstone 1, "Interpreting Multiplication and Division"**

Students compare and explain representations of multiplication and division situations involving whole numbers and fractions. Building baseline knowledge to support understanding of the increasingly abstract concepts found in middle school math, this Cornerstone helps students interpret the meaning of multiplication and division beyond "times" and "share."

## **Grade 6, Science, Cornerstone 1, "Solar System Models"**

Students create physical models of the planets of the solar system. By creating these models, students better understand the sizes of the planets compared to one another.

## **Grade 6, Language Arts, Cornerstone 2, "From the Eyes of the Monster"**

Students choose and read a classic tale featuring a monster, paying special attention to how the monster responds and changes during the tale. Students analyze character, plot, point of view and author's techniques to craft an engaging, well-written narrative retelling of the classic tale, from the perspective of the monster. Students then research the tale (social history behind the story, versions of the story in different cultures, etc.) and craft a multi-media presentation of their writing and research.

## **Grade 6, Health and Physical Education, Cornerstone 2, "The Grid"**

Students learn how to use a compass and how to read and create a map. They apply that knowledge in navigating the city on an orienteering field trip. During the adventure, students record a range of data including steps, individual physical responses, duration, route and visual observations.

## **Grade 6, Math, Cornerstone 2, "Rethink Your Drink"**

Students explore proportional relationships by analyzing the amount of sugar in different drinks. Students come away with a better understanding of just how much sugar is in common drinks as related to the daily recommended amount of sugar. Students may also be surprised to find out that some drinks are not as healthy as they once thought.

## **Grade 6, Science, Cornerstone 2, "Ice Cores"**

Students explore the history of Earth's gradual climate change as they create and model ice cores. They explain how scientists study ice cores to learn about Earth's past. Ice cores' layers offer evidence of the human impact of the rise in mean temperature of Earth's surface, and demonstrate the difference between immediate and gradual change.

## **Grade 6, World Geography, Cornerstone 2, "Three Religions BLISS Module"**

How can one geographical location hold meaning for three different religions? After reading informational texts about Judaism, Islam, and Christianity, and the Temple Mount/Haram Al-Sharif in Jerusalem, students write an informational/explanatory essay that describes the significance of this site to each of these religions and addresses the question.

## **Grade 6, Language Arts, Cornerstone 3, "America's Promise"**

The poem "A New Colossus" is enshrined on the base of the Statue of Liberty, which welcomed immigrants to America for many years. Through an examination of this poem and various texts read during the unit, students evaluate whether or not America lives up to the promise given in the poem. Students prepare and participate in a fishbowl discussion during which they make and support a claim using textual evidence from multiple sources. After the discussion, students craft a written argument on the same topic.

## **Grade 6, Health and Physical Education, Cornerstone 3, "Triple Threat"**

Students create a toolkit of refusal statements and strategies that can be used when someone asks them to try alcohol or other drugs. Students must include a sample dialogue between two people, where one person uses effective communication skills to resist pressure to use alcohol or other drugs and identify factors that influence a person's decision not to use alcohol, tobacco or other drugs.

## **Grade 6, Math, Cornerstone 3, "Consecutive Sums"**

Students have the opportunity to make and refine their own conjectures and to test stated conjectures to determine if they are always, sometimes, or never true. Students engage in dialogue with classmates each day of the Cornerstone and have opportunities to share out and be the expert, and to explain the reasoning in proofs done by sample students.

## **Grade 6, Science, Cornerstone 3, "Our Region's Landscape and Human Impact"**

This task helps students understand human dependence on fresh water and inequities in access to clean water. Students learn how humans impact the natural world (through contamination), and how one particular technology, water filtration, can be used to reduce the negative impact of humans on the Earth.

## **Grade 6, World Geography, Cornerstone 3, "Aipocalypse BLISS Module"**

Is city living worth it? The module asks students to consider the implications of rapid urban growth. Conceptually, students explore the relationship between cause and effect and discuss whether the environmental and health costs of urbanization are worth the economic benefits.

## **Grade 6, World Geography, Cornerstone 3, "United Nations Simulation"**

How can people work together to best respond to natural disasters? Students engage in a United Nations simulation, investigating the impact of the 2013 Typhoon Haiyan on the Philippines and engaging in writing and speaking exercises to simulate how the United Nations responds to natural disasters.

## **Grade 6, Language Arts, Cornerstone 4, "What is Courage?"**

Students explore what it means to be courageous and develop criteria for courage. Students use their criteria to determine whether characters in the

novel *Roll of Thunder, Hear My Cry* exemplify courage. Students select one character they believe epitomizes courage, create a poster for this character, and write an argument essay defending their choice.

#### **Grade 6, Health and Physical Education, Cornerstone 4, “Family Guide for Kids: Sexual Health”**

Students analyze sources of health information and the factors that influence the health choices that adolescents make. Students use reliable websites to gather information on the various factors that influence the choices students make about sexual activity. Students use information learned in previous lessons to develop a guide on these influences and other aspects of adolescent sexuality. They target their guide to parents, one of the first influences on teen sexuality.

#### **Grade 6, Math, Cornerstone 4, “Designing Miniature Golf”**

As part of their study of composing and decomposing polygons, students use an interactive website to gain confidence with using tangram puzzle pieces to build complex polygons, which supports them in redesigning a hole of miniature golf. Students play Pencil Golf on a paper model of the original design in order to collect feedback on interest and challenge the hole presents to players to aid in their redesign efforts.

#### **Grade 6, Science, Cornerstone 4, “Fossils”**

Students take the role of engineers to explore how they might study fossils. In addition, students use the design process to develop and compare ideas for tools that perform one or more of the following objectives: extract fossils, investigate the physical and/or chemical properties of fossils, or prevent future extinctions.

#### **Grade 7, Language Arts, Cornerstone 1, “Real World Warriors”**

Students define what a “warrior” is and select a person from their community who has persevered and meets their criteria of an “everyday warrior.” They then compare and contrast this warrior to Melba Patillo Beals in *Warriors Don’t Cry* or a character from an alternate text that addresses similar themes. Students create a visual product to share this comparison and orally present their findings to their classmates and community.

#### **Grade 7, Health and Physical Education, Cornerstone 1, “Facts and Fairy Tales”**

Students assess the power of peer influence and analyze sources of health information as they research and dispel major misconceptions that young people have regarding pregnancy and STIs. Students develop an informational resource for middle school students titled “STI and Pregnancy Prevention: Facts and Fairy Tales.”

#### **Grade 7, Math, Cornerstone 1, “Triple Triumph”**

Students engage in playing a puzzle game which allows them to explore the properties of numbers and operations and to practice their computation. Through the exploration of this puzzle, students make conjectures about the properties of operations, and develop a strategy for solving the puzzle.

#### **Grade 7, Science, Cornerstone 1, “Mystery Cell Lab”**

Students participate in an engineering design lesson using a model to transport a material, a process analogous to transporting the electrochemical impulse through the neuron. Then, students use their knowledge about cells

to determine how the structure of an unknown cell, a neuron, contributes to its function.

#### **Grade 7, Ancient World History, Cornerstone 1, “Agricultural Revolution BLISS Module”**

Was the development of agriculture good for humans? After viewing and reading information about the Agricultural Revolution, students write an informational/explanatory essay that discusses the positive and negative impacts of the Agricultural Revolution.

#### **Grade 7, Language Arts, Cornerstone 2, “My Vivid Life”**

Students explore the relationship between humor and despair in literature by analyzing techniques and structures that Roald Dahl uses in his texts, particularly *Boy*, to share vivid experiences. Students dive deeply into the use of dialogue and description, crafting a narrative writing piece with vivid description and dialogue to elicit humor or tragedy based on a real life experience.

#### **Grade 7, Health and Physical Education, Cornerstone 2, “Fitness Plan”**

Students develop a two-week personal physical fitness plan that focuses on building their cardiovascular fitness, muscular endurance, muscular strength, and flexibility.

#### **Grade 7, Math, Cornerstone 2, “Giant Pencil”**

Students use their imaginations to picture a giant stopping by their class overnight and leaving a pencil behind as a clue to find out more about the giant. Students work to figure out the height of the giant in an interactive lesson. Students then work to determine if the pencil the giant left behind is proportional to their pencils. Lastly, students work to create other objects at a size appropriate for their new classmate.

#### **Grade 7, Science, Cornerstone 2, “GenetiWhat?”**

Students use their knowledge of DNA to explore the concepts of genetics and heredity. Students learn to extract DNA and then complete independent investigations to gather evidence to eventually support a claim during a Socratic seminar.

#### **Grade 7, Language Arts, Cornerstone 3, “Survival Above Everything?”**

Students challenge the assumption that survival is more important than sacrifices made to survive, and potentially surprise themselves with their own identified limits of what they would do/justify to survive.

#### **Grade 7, Math, Cornerstone 3, “Planning a Bowling Party”**

Students explore operations with rational numbers as they apply to algebraic equations and solving for an unknown quantity. This Cornerstone engages students in the process of selecting a venue for a celebratory bowling party based on the business’s cost proposal. Students use mathematical representations (equations, inequalities, tables and graphs) to decide which bowling alley offers the most cost effective package for students attending a bowling party. Based on the competitors’ offers, students also determine a package proposal that will never cost more or less for a third bowling alley.

#### **Grade 7, Science, Cornerstone 3, “Natural Selection”**

Students use their prior knowledge of what it means to be “fit” in order to



predict who will win a race, compare the biological fitness of two animals, and create a definition that can be applied to both scenarios.

#### **Grade 7, Language Arts, Cornerstone 4, “Fiction or Future?”**

Students continue their study of science fiction by analyzing a text set about HG Wells’s *The War of the Worlds*. Students review the text set in an attempt to decide who is responsible for the ‘panic’ caused by the radio broadcast on October 30, 1938. Students listen to the audio broadcast of the text, and read primary and secondary sources that both contribute to and discredit the ‘panic’ that the broadcast caused. Students gather evidence from the texts to develop and support an argument for who is responsible for the real (or perceived) panic, and engage in a debate defending their claim. Was it the fault of Wells, for writing such realistic fiction? Was it the media’s for broadcasting the text and publishing several articles afterwards describing the ‘panic’? Or was it the people’s fault, for believing that Martians were truly landing?

#### **Grade 7, Math, Cornerstone 4, “Design a Robot”**

Students apply their understanding of nets, surface area and volume to create a 3-dimensional toy robot prototype. Students create nets from cardstock paper, cover the shapes in tin foil, and ultimately write two paragraphs to a toy developer describing why their design is the best for the company, including surface area and volume in their reasoning. Throughout the Cornerstone, students engage in the IB MYP Design Cycle by investigating, planning, creating and evaluating.

#### **Grade 7, Science, Cornerstone 4, “Bioremediation”**

Students watch a video clip and read an article about bioremediation. They then record relevant biographic information as well as key details. Students try to remove sugar from water using yeast. They have several options to try to maximize yeast respiration and run two rounds of their designs.

#### **Grade 7, Ancient World History, Cornerstone 4, “Greek Governments BLISS Module”**

Who should have power in government? After close reading, students engage in a Paideia seminar using an excerpt from Pericles’s “Funeral Oration” and supporting texts about Athenian government. Students write an argumentative essay that discusses who should have power in government.

#### **Grade 8, Language Arts, Cornerstone 1, “Declaring Independence: Untold Histories”**

Students analyze multiple texts that discuss the roles of enslaved persons in the American Revolution. Students create a letter explaining to fifth grade students the critical role enslaved persons played in the American Revolution, and enslaved persons’ fight for freedom.

#### **Grade 8, Health and Physical Education, Cornerstone 1, “Place Matters”**

Students examine health disparities and how the built environment impacts the health of individuals and communities. They analyze the relationship between various health features within the community and the health of its members. Students then develop a documentary on an environmental issue within their community and propose a solution.

#### **Grade 8, Math, Cornerstone 1, “Estimating Length Using Scientific Notation”**

Students investigate various lengths of objects and discover the need for using scientific notation to describe and compare very large and very small quantities. Students investigate the size and length of ants compared to an animal of their choice.

#### **Grade 8, Science, Cornerstone 1, “Changing States: Evaporation”**

Students use their knowledge about thermal energy and vaporization to design a desalination device that can be used to convert ocean water into safe drinking water.

#### **Grade 8, U.S. History, Cornerstone 1, “Declaration of Independence BLISS Module”**

Were the ideas in the Declaration of Independence revolutionary? After reading primary and secondary sources, students write an informational/explanatory essay in which they describe the Enlightenment roots of the political philosophy found in the Declaration of Independence.

#### **Grade 8, Language Arts, Cornerstone 2, “Talking About the American Dream”**

Students write, practice and deliver a TEDx talk or spoken word performance using unit texts to support their analysis and answer to the question “What is the American Dream and how is it achievable for all Americans?” Students build knowledge of effective narratives by analyzing structural and language techniques used by powerful TED speakers and performers to convey their central idea/point of view and use this knowledge to create their own narrative speech or poem based on their analyses of unit texts. Students present this narrative to peers and/or the community at an unofficial TEDx event.

#### **Grade 8, Health and Physical Education, Cornerstone 2, “A Month of Fitness”**

After participating in a baseline assessment of their fitness, students develop a three-week personal physical fitness plan that addresses their findings, especially as related to agility, coordination, speed, and reaction time.

#### **Grade 8, Math, Cornerstone 2, “Copyright Laws and Graphic Design”**

Students engage in a series of explorations that develop their understanding of rigid transformation (rotations, reflections and translations) and dilations over a series of days. Using their understanding of these concepts, they complete an activity which requires them to apply their knowledge of congruence, similarity, transformations and dilations to designing logos for a newly founded company. Their final product includes the parent company’s original logo, the student’s newly designed logo, and a detailed explanation of how their logo meets the project requirements (a series of transformations) while not breaking any copyright laws.

#### **Grade 8, Science, Cornerstone 2, “Solids, Liquids, and Gases: The Matter of it All”**

Students explore the behavior of water molecules when temperature conditions change through investigations and observe molecular model animations. They use this exploration activity to create a diagram representing how the movement of water molecules is affected by changes in temperature.

### **Grade 8, Language Arts, Cornerstone 3, “Jim Crow: Stories from the Road”**

Students engage in inquiry-based learning to research what life was like in America during the period of racial segregation called Jim Crow. Students read a variety of works included in the Cornerstone text set, and then present their findings in a written report that includes argumentation in support of their new perspective on the effects that segregation had on American society, with particular emphasis on how it affected African Americans.

### **Grade 8, Health and Physical Education, Cornerstone 3, “If You’re Watching This”**

Students understand the various components of health and how these components interact with and affect one another. Students learn that by taking a leadership role and advocating for others who may differ from themselves, they can change their environment for the better. Students debunk myths about mental health and address the role of family and friends in supporting mental and emotional health. They then create a video diary to an individual who is experiencing depression or suicidal thoughts that offers them guidance.

### **Grade 8, Math, Cornerstone 3, “The Shortest Route”**

Students use the Pythagorean Theorem and reasoning to determine the shortest route in a schoolyard game. Students make and test hypotheses about the shortest path and use the Pythagorean Theorem to determine the length of their predicted pathways. Students discuss, analyze and critique their peers’ and others’ methods and strategies to refine and reflect on their own work. For their final task, students individually choose a strategy to calculate the distance two football players run in a football game scenario.

### **Grade 8, Science, Cornerstone 3, “Energy Changes in Chemical Reactions”**

Students use their knowledge about endothermic and exothermic reactions to design and build a cold pack. They write a paragraph to the school nurse explaining how their cold pack works and persuading him or her to adopt their cold pack design.

### **Grade 8, Language Arts, Cornerstone 4, “Messages of Social Justice”**

Students dive deeply into all forms of text - written, oral and visual - with an aim to analyze and evaluate the power and impact of an author’s or artist’s social message conveyed in their chosen text form and structure. Students closely read and study a text and the author’s message, then compile their ideas and analyses to create and defend a claim which textual medium and structure is most effective for conveying a social message.

### **Grade 8, Math, Cornerstone 4, “Comparing Fuel Consumption”**

Students construct functions to model the fuel efficiency of several different vehicles. Students learn to solve real-world problems that involve rate of change. Students also determine best solutions by creating comparing, and evaluation different representations of functions.

### **Grade 8, Science, Cornerstone 4, “Sound Waves”**

Students design and build a soundproof box to dampen the sound generated outside the box as much as possible. Students learn to think like engineers as they design a model sound box to explore the sound-dampening ability of numerous materials to mimic the properties of a real sound booth. They

learn how sound is reflected and absorbed, and how it travels through various materials, providing an overview of sound dampening, energy absorption, and sound propagation in the context of engineering.

### **Grade 8, U.S. History, Cornerstone 4, “The Triumphant Failure BLISS Module”**

Does violence lead to change? After reading primary and secondary sources related to John Brown’s raid on Harper’s Ferry, students write an argumentative essay that discusses Brown’s raid and evaluates the extent to which it advanced or hindered the abolitionist cause.

### **Middle Grades, Art, Cornerstone 1, “Close Study Viewing”**

Students engage in close viewing of an artwork that relies on perspective as a conceptual element of understanding. Students explore the theme of “other” and develop an understanding of the conceptual process of developing perspective that informs their own work in this unit.

### **Middle Grades, Music, Cornerstone 1, “Close Study”**

Students use their listening skills to discuss and infer the composers’ intent. Students may also create movement to go along with the suggested work.

### **Middle Grades, World Languages Level 1, Cornerstone 1 “Social Media - #MyProfile”**

Using the target language, students create a mock social media profile with basic information about themselves, such as name, age, date of birth, nationality, residence, favorite activities, and more. At the end of the activity, students guess who is represented in the profiles by reading the profiles without names and pictures.

### **Middle Grades, Art, Cornerstone 2, “The Grid: Medium”**

Students examine the ways that artists use the aesthetics of mapping and representations to communicate ideas about space and location. This Cornerstone follows an associated physical education Cornerstone wherein students participate in a geocaching adventure. During the adventure, students record a range of data including individual physical responses, duration, route, and visual observations. Students also collect personal, experiential data in the form of drawing, writing, photographs or objects. These data are then used to create a visual work.

### **Middle Grades, Music, Cornerstone 2, “Composition and Improvisation”**

Students analyze, listen to, and perform a variety of pieces, as well as compose and improvise upon their own works to understand these processes. As a final product, students create compositions using a specified form and perform compositions in small ensembles while adding improvisation.

### **Middle Grades, World Languages Level 1, Cornerstone 2 “Path Quest”**

Students explore the pathway from school to career. They reflect on what components or qualities are necessary to successfully achieve their professional goals. They learn what infographics are, and create their own “PathQuest” infographic that includes images and vocabulary in the target language on personality traits, school subjects, extracurricular activities, and educational requirements necessary for their future profession.

### **Middle Grades, Art, Cornerstone 3, “Powerful Beyond Measure”**

Students develop a visual vocabulary of how cultures use imagery to promote power structures, through an examination of representations of power throughout visual history. Students examine the works of contemporary artists who manipulate this vocabulary to create alternative structures of power. Students manipulate this visual vocabulary to create a self-portrait wherein they present themselves in a power role through image capture, manipulation, and mixed media.

### **Middle Grades, Music, Cornerstone 3, “Alternative Sound Production and Notation”**

This experience immerses students not only in the production of sound, but also in the physical nature of sound. In their science classes, students study sound waves, their properties and perceptions, and understand how sound behaves. Simultaneously, students in music classes build their skills of performance, focusing on the production of sound through alternative instrumentation and the transcribing of sound through alternative notation.

### **Middle Grades, World Languages Level 1, Cornerstone 3, “Home Sweet Home”**

Students present their home or the home of their dreams in the target language, and engage in meaningful communication. Every student has the opportunity to create a floor plan of their home, either online or by drawing or using Legos. Each student provides information about their home such as number and type of rooms, furniture, rooms related to family members and family activities, what they love about their room and their home. At the end of the unit, students play a class game where they match each description with the right picture/model.

### **Middle Grades, Art, Cornerstone 4, “Hear My Voice”**

This Cornerstone focuses on the presentation of work as a key factor in how audiences understand a message. Students analyze the work of artists such as Jenny Holzer and Lorna Simpson, who elevate visual imagery through careful use of language and presentation. Through the process of writing, reducing, and refining declaratory statements, students will develop either a belief statements or personal fragment. For the final work, students will present these statements in ways that visually reflect their beliefs and ideas about themselves and their place in society at large.

### **Middle Grades, Music, Cornerstone 4, “Deconstruction and Arrangement”**

Students examine the choices musicians and composers make in the creation of music. Students deconstruct songs based on role, elements, and impact. Following the deconstruction, they rearrange the song, focusing on form, dynamics, and impacting the role of the song. As a final project, students plan a performance, considering repertoire, location, and audience. Students identify goals for the audience experience, and collect feedback to determine success.

### **Middle Grades, World Languages Level 1, Cornerstone 4, “Just a Taste: Food Vocabulary”**

Students take their knowledge of food vocabulary to create and write a real recipe. Students have the opportunity to practice food vocabulary, and to engage in research of a popular dish from a target language country.

# High School

## **Art, Visual Art, Cornerstone 1, "Close Study Viewing"**

To explore the relationship between an artist's decisions about medium, texture, finish, scale, space, and the artist's personal expression, students conduct a close study of the work of three artists: Auguste Rodin, Luis Jiménez, and Jae Rhim Lee.

## **Art, Visual Art, Cornerstone 2, "Language of Layering"**

Students experiment with the use of layering to create complex imagery that straddles representation and abstraction. Students use the process of trace monotype to create drawings from found and generated imagery, layering contour lines. They then create a composition that reflects a chosen person, topic, or issue.

## **Art, Visual Art, Cornerstone 3, "Transforming Environment"**

Students explore the concept that art can transform space and investigate the environment around them. This work challenges assumptions that space is a fixed concept, and presents the idea of space as a construct.

## **Art, Visual Art, Cornerstone 4, "Text and Image; Text as Image"**

Students conceptualize artistic ideas through the juxtaposition of text and image as well by investigating text as image. Students shape artistic investigations by examining both professional artists and popular culture including advertising and propaganda, and analyze the impact of this work on the personal awareness of social or political beliefs and understandings. Students synthesize and relate knowledge and personal experiences to make art by documenting the process of developing ideas from early stages to fully elaborated ideas.

## **English, English I, Cornerstone 1, "Theme through Character"**

Students take a closer look at one of the characters in the play "Fences" and examine how August Wilson uses that character to develop a theme related to personal or societal tension. Students analyze how a character's interactions, words, and actions develop an identified theme. Students then present their analysis through a character-theme concept map.

## **English, English II, Cornerstone 1, "Wes's Choices"**

Students participate in a Paideia Seminar to analyze the critical events in Wes Moore's life that enabled him to be successful, as well as how Moore, as the author, develops himself as a character, and shows the reader what supports are necessary to help young people succeed. Students complete a quick outline based on notes taken during the discussion, with a specific focus on how the structure of the text emphasizes the author's purpose. Students cite specific evidence from *The Other Wes Moore* to support their analysis.

## **English, English IV, Cornerstone 1, "Looking to the Future"**

In partnership with One World Education, students research, write, and present on self-chosen themes within the realm of college and career issues. Students may represent their school at an annual College and Career Senior Challenge, where students lead 4-minute and 30-second presentations to panels of education and city leaders for a chance to win scholarships for college.

## **English, English I, Cornerstone 2, "The Multiple Lenses of Beauty"**

Students demonstrate understanding of how beauty is viewed in modern society through a synthesis of a poem, two informational texts from the unit, and the teacher-selected unit novel. Students create a gallery of annotated images that represent and synthesize the truth about beauty from the perspective of four authors.

## **English, English II, Cornerstone 2, "Learning from Our Past"**

Students develop stronger content knowledge about self-chosen topics within the theme of cultural and global issues. After examining exemplary student writing and researching informational texts, students construct evidence-based writing, in the form of an Argumentative Reflection, focused on creating a narrative about a current topic related to atrocities or large-scale injustices. Students develop and strengthen research, writing, and presentation skills. Teachers then select student writing for submission to the One World Education Team for publishing consideration.

## **English, English III, Cornerstone 2, "The Role of the Black Artist"**

Students analyze the essay "The Negro Artist and the Racial Mountain" by Langston Hughes, and Hughes's argument about the role and responsibility of the black artist, by engaging in a Paideia Seminar and writing an essay. Using Hughes's text, students examine essays and artwork (literary, visual, music) by black artists, evaluating whether or not the artists fulfill their roles and responsibilities according to Hughes. Students create a PREZI or Google Slides presentation to share their analysis with classmates.

## **English, English I, Cornerstone 3, "Shakespearean Acting Companies"**

Students build upon their knowledge of "Romeo and Juliet" and deepen their understanding of Shakespeare's language by staging group scenes from the play. Using active close reading strategies, teams of students unpack an assigned or chosen scene, cut the scene into a script for performance, annotate the script to create a promptbook, and perform their scenes for an audience. Additionally, each group completes a "Performance Report," where the group summarizes the scene, comments on its importance in the play, and justifies the group's performance choices with textual evidence.

## **English, English II, Cornerstone 3, "Is a Picture Worth 1,000 Words?"**

Students learn how to do a close reading of Vietnam War images. They serve as a participant and expert in the image analysis presentation, which includes leading discussions, using accountable talk, and also demonstrating the understanding of the image by using evidence, asking and responding to clarifying, analysis and evaluative questions. The final product is each student's role in the small group close reading, and includes a reflection and self-analysis.

## **English, English III, Cornerstone 3, "Mobilizing the Masses"**

Students become agents of change! After engaging in a shared read from *The Autobiography of Malcolm X* by Alex Haley, where they discuss the ways in which leaders make plans of action to correct social injustice, students identify a current societal issue that affects their schools, neighborhoods, or broader communities. They research the background of that issue, envision a solution, and finally, propose a five-step action plan in order to bring about that solution.

### **English, English IV, Cornerstone 3, “Dystopian Passport”**

Students explore a specific genre of literature called dystopian fiction. Students analyze multiple texts to deconstruct how and why authors create dystopian societies. Students reflect on their personal experience to critique oppressive characteristics of our own society and develop an artifact representative of hidden oppression. Students synthesize revolutionary characteristics of the 1960s to rally a call to action to understand the role of the individual in society to affect change.

### **English, English I, Cornerstone 4, “Honorable Traits and Truths”**

Students explore how to research reliable sources that support a character analysis and portrayal of a real-life person within a historical fiction text. To do this, students track one character as they read the text and extend their knowledge of that character by conducting independent research. Finally, students work in teams to present their character (both the real-life version and Michael Shaara’s interpretation of that character) on a late-night TV talk show.

### **English, English II, Cornerstone 4, “Who’s There? Understanding Characters Through Performance”**

This Cornerstone opens the unit. It sets students on a strategic path designed to build confidence and skill with Shakespeare’s language. Starting with individual words and building up to a (cut) scene, the whole class uses performance as a means of 1) understanding what is literally said, 2) exploring a range of possible interpretations of what is implied, and 3) building student motivation and interest. Finally, once the whole class has put Hamlet 1.1 “on its feet,” students work in small groups to create and evaluate their own versions of a scene from Hamlet 1.2.

### **English, English IV, Cornerstone 4, “WO(MAN)”**

Students write a personal narrative that describes an important man and/or a woman in their lives and explain how those important people fit into gender norms, how they challenge gender norms, and how they shape students’ gendered sense of self. Students examine gender roles and norms in society and culture. They create a presentation that answers the following question: How does your culture/society define what it means to be a man or a woman?

### **Health and Physical Education, P26: Health, Cornerstone 1, “Stop the Spread”**

Students take on the role of an employee at the Department of Health who has noticed an increase in the incidence (number of new cases) of an assigned disease. After researching the disease pathology and other aspects of the disease, students develop a public health strategy to limit the spread of the disease and provide guidance to health care workers on how to treat patients in a cost-effective manner.

### **Health and Physical Education, PE 1: Fitness and Lifetime Sports, Cornerstone 1, “Evaluate Your Opinions”**

Students explore community resources for participating in physical activity outside of school and examine aspects of their personal network that support or hinder their participation in physical activity. Students present their community resource at an activity fair.

### **Health and Physical Education, PE 2: Fitness and Lifetime Sports, Cornerstone 1, “Fitness Plan – Pick, Defend, Expound”**

Students analyze their fitness assessments from PE1 to set new fitness goals and to create a fitness improvement plan. Students then use at least three technology resources (apps or websites) to develop a circuit training routine that addresses their areas of need.

### **Health and Physical Education, P26: Health, Cornerstone 2, “Play it Safe”**

Students learn how to prepare for and respond to emergency situations at home or at the workplace. During this unit, students learn strategies for addressing emergencies, which include hands-only CPR and first-aid. They inspect their home for emergency and child safety, and create a plan for their family to ensure safety of children in emergencies.

### **Health and Physical Education, PE 1: Fitness and Lifetime Sports, Cornerstone 2, “Let’s Get Fit”**

Students research the physical needs and considerations of an individual in a career field that is of interest to them and design a program that addresses the individual’s physical needs and concerns. For example, a student may recommend strength training for a nurse who lifts and moves patients.

### **Health and Physical Education, PE 2: Fitness and Lifetime Sports, Cornerstone 2, “Let’s Go International”**

Students select a dance or cultural activity from another country to study. They research the origin of the dance/activity, trace its development throughout history, and perform a cultural activity from the country.

### **Health and Physical Education, P26: Health, Cornerstone 3, “Family Matters: Sexual Health”**

Students explore the financial, mental and emotional ramifications of having a child. Students take on the role of a parent who is attempting to buy the necessary items to raise and care for a child. As a result of this experience, students understand the short and long-term consequences of health decisions. Students also understand the importance of planning and setting goals. Students are given a role and a monthly salary card with which they have to budget and figure out which items they can buy for their new baby with their given salary. They research the costs associated with a child, and create a budget.

### **Health and Physical Education, PE 1: Fitness and Lifetime Sports, Cornerstone 3, “Archery Tournament”**

Students receive instruction on the National Archery in Schools Program (NASP) curriculum, with the intent to participate in a culminating tournament. Students participate in a small archery tournament with another school to show their mastery of the 11 steps to archery success.

### **Health and Physical Education, PE 2: Fitness and Lifetime Sports, Cornerstone 3, “Training Day”**

Students select an athletic event that takes place in the Washington Metro area, create a training plan for the event, and journal their progress as they train for the event.



#### **Health and Physical Education, PE 1: Fitness and Lifetime Sports, Cornerstone 4, "A Lifetime of Sports"**

Students select two lifetime activities from their course syllabus and analyze the skill set necessary for each. After analysis, students are tasked with reaching competency or refining weak areas via a rubric.

#### **Health and Physical Education, PE 2: Fitness and Lifetime Sports, Cornerstone 4, "Got an App for That"**

Students select two lifetime activities from their course syllabus and analyze the skill set necessary for each. After analysis, students are tasked with reaching competency or refining weak areas via a rubric.

#### **Math, Algebra I, Cornerstone 1, "Leap of Faith"**

Students assume the role of the owners of a fictional bungee jump company. Students compete against their classmates to craft the most thrilling, non-fatal, bungee jump experience for their customer. Students complete several trial runs in their classroom over a series of days with a limited number of resources, and analyze their collected data to create the best plan for the customer's actual bungee jump.

#### **Math, Algebra II, Cornerstone 1, "College and Career Choices"**

Students use linear functions to model their lifetime earnings in various career paths, accounting for the costs of higher education in careers that require it. Each student performs independent research and produces a report that details a desired career path, a chosen college, and the mathematical analysis supporting both choices.

#### **Math, Geometry, Cornerstone 1, "Creating Your Brand: A Logo Design Project"**

Students design a logo that represents their personality, likes, interests, and/or their name and likeness. Given specific parameters, they create the logo on the coordinate plane and write a description of their design.

#### **Math, Algebra I, Cornerstone 2, "The Bungee Company"**

Students analyze bungee trials of different weighted objects such as action figures and small plastic dinosaurs. They examine data about the relationship between the weight of the object and the number of weights placed on the object, the length of the bungee cord with relation to the number of rubber bands applied, and the relationship between the weight of the object and the ideal bungee length. Students create various models of their data (graphs, input/output tables, mappings, and verbal phrases) to help them determine the domain/range and if the relation is a function. They also use function notation to predict outcomes of different numbers for their trials when the height of the possible jump changes.

#### **Math, Algebra II, Cornerstone 2, "NASA Shuttle Launch"**

Students use their knowledge about linear and quadratic regression to make predictions about the first two minutes of a space shuttle launch. Using their predictions, they conduct mock interviews among the class to determine who would receive an internship at NASA.

#### **Math, Geometry, Cornerstone 2, "Proving Quadrilateral Properties"**

Students discover properties of quadrilaterals using their own measurements, organize those properties into a table and a flowchart, and write proofs of each property.

#### **Math, Algebra I, Cornerstone 3, "Quadratic Catapults"**

Students build catapults to measure the parabolic flight path of launched items. This Cornerstone begins with students investigating the key characteristics of a quadratic function. Then, students build the actual catapult. Students perform trial runs that compare the angle, distance, and height of the flight path of objects that are launched from the catapult. Finally, students analyze their data to create a general quadratic function that can be used to predict and model the path of a catapulted item in order to hit a specified target.

#### **Math, Algebra II, Cornerstone 3, "Taking Action Against Cancer"**

Students discover the exponential model, and answer questions about both cancer cell growth and the finances associated with it. Students use this knowledge to take action against cancer and write about the experience.

#### **Math, Geometry, Cornerstone 3, "Trigonometry Surveying Project"**

Students take Geometry outside to experience its place in the real world by using trigonometry to determine the heights of buildings and other objects. Students practice finding heights of various objects presented in word problems. They draw diagrams to represent the problem and explore trigonometric ratios given the distance from the object and the angle of elevation. Next, students take all necessary measurements needed to understand finding the height of an object in the world. Finally, students demonstrate their ability to complete the correct calculations using the measurements that they recorded, and reflect on possible sources of errors in their calculations.

#### **Math, Algebra I, Cornerstone 4, "We Are the World"**

Students compare data from throughout history and around the world. They understand how far we, as global citizens, have come and how we have grown. This enables students to gain an understanding of where we are going in the future (growth-wise), and how this will have an impact on our world.

#### **Math, Algebra II, Cornerstone 4, "Stock Sequences and Series"**

Students use sequences and series, and build on their understandings of functions, to understand the stock market and plan future investments of their own. At the start of the Cornerstone, students create simulated stock portfolios containing \$10,000 of stock; they spend several days analyzing patterns of arithmetic and geometric change, and conclude the project with Investment Reports that model the growth of their portfolios using sequences and series. The project also includes optional school- and district-wide investing competitions that give students the chance to demonstrate their investing acumen.

#### **Math, Geometry, Cornerstone 4, "Investigating Cycles"**

Students explore properties of angles and polygons in circles to discover some of the most beautiful and unexpected relationships in all of geometry, including the relationship between inscribed and central angles, and properties of angles in quadrilaterals inscribed in circles. Each investigation begins with students using protractors and/or rulers to make measurements. Then, students theorize about patterns, create further diagrams to verify those patterns, and prove those patterns. The final products are mathematically deep, dynamic and colorful, and genuinely rigorous.

### **Music, General Music, Cornerstone 1, "Close Study"**

To address the relationship between the music and the audience, students utilize close listening to examine compositions, including works designed to elicit audience reaction.

### **Music, Performing Ensembles, Cornerstone 1, "Close Listening"**

To address the relationship between the music and the audience, students utilize close listening to examine compositions, including works designed to elicit audience reaction.

### **Music, General Music, Cornerstone 2, "Musical Language"**

Students explore how structure and rhythm aid in a musician's ability to improvise and create. Using various improvisational and compositional tools, such as their bodies and found objects, students create their own composition.

### **Music, Performing Ensembles, Cornerstone 2, "Ensemble"**

Students develop the ability to research, listen, analyze, evaluate, and choose repertoire based on key musical details. This is an ambitious, yet rewarding skill set to develop in ensemble students. A suggested approach to student engagement is to leverage this experience as an opportunity to develop student ownership in the ensemble's programming decisions, or to "hip" students to a director-level skill set.

### **Music, General Music, Cornerstone 3, "Transformation: Genres Over"**

Students use their listening, analytical, and research skills to discover genealogical connections between genres of music in the 20th and 21st century in America. Students propose, design, and create an exhibit for the Smithsonian Museum of American History where visitors can learn about the development of American popular music. Exhibits can be audio timelines, slide presentations, or a collection of artifacts.

### **Music, Performing Ensembles, Cornerstone 3, "Student Self-Evaluation in Performance Preparation"**

Students actively engage in the performance preparation process. Through active involvement in close listening, score study, and self-evaluation, they assume the role of Assistant Director, guiding the ensembles' improvement process in performance preparation.

### **Music, General Music, Cornerstone 4, "My Blues"**

Students listen to and analyze songs that speak about experiences students may have struggled with in their own lives, such as Prince's "Baltimore." They listen to political music that expresses hardships and struggles that students identify with. Students have the opportunity to create music that expresses students' personal experiences.

### **Music, Performing Ensembles, Cornerstone 4, "Arranging"**

Students take a popular song or a repertoire piece that they like and create a new arrangement of the composition. Students compose for 4-6 musicians and identify instrument/voices that complement the overall style/genre of the piece. Once students have identified the instrument/voices they wish to use, students must give instruments roles. These must include a defined melody and accompaniment parts. The parts may include a bass line, counter-melody lines, harmonization of the melody, and rhythmic

accompaniment that matches and compliments the style of the song. Once the arrangement is complete, students assemble a group of their peers to perform their piece as a culminating task (performance). Students write the music by hand and then on music software, i.e. Finale, Sibelius, etc.

### **Science, Biology, Cornerstone 1, "Carbon Footprints"**

Students use the United States Environmental Protection Agency Carbon Footprint website to calculate their carbon footprints and discover what they can do to reduce their carbon emissions. Students write a policy that can be applied to their community or school to lower carbon emissions.

### **Science, Chemistry, Cornerstone 1, "Can the Mettle of Metal be Improved?"**

Students design an experiment to demonstrate how a metal's properties can be altered by heating and cooling (annealing, quenching and tempering of metals). This activity provides students with a hands-on opportunity to explore transformation of matter and provides a context for discussion on the structure and properties of matter.

### **Science, Physics, Cornerstone 1, "Driving the Roads"**

Students use physical models and prior knowledge of kinematics to evaluate reaction time, braking distance, and yellow light timing.

### **Science, Biology, Cornerstone 2, "Natural Selection"**

Using different colored paper chips to represent prey and a piece of fabric as a background to represent the environment, students test the reliability of a model for the process of natural selection. Students "hunt" to see which color prey are best adapted to the environment and have the best chance of living and reproducing to pass their traits on to subsequent generations.

### **Science, Chemistry, Cornerstone 2, "Energized!"**

Students make functional electrical cells (batteries) and determine the relative strength of each type of cell. Students utilize an egg carton and Jell-O to construct a functioning electrical cell and compare materials.

### **Science, Physics, Cornerstone 2, "Make a Solar Cooker"**

Students use a simplified equation to create a computational model to show how various elements affect the temperature in an oven. Students plot and compare the data for each simulation. Building on their designs, equations, and simulations, students then build and revise their own solar ovens using principles of energy transformation and transfer within the solar box system.

### **Science, Biology, Cornerstone 3, "Comparing Cancer Cells"**

Students compare normal and cancer cells in different stages of mitosis using a virtual lab. Students compare different cancer rates globally and discuss reasons behind the differences.

### **Science, Chemistry, Cornerstone 3, "Chemistry Clicks Your Bic"**

Students determine the molecular mass of butane from a lighter using Dalton's law of partial pressures and combined gas law and apply these concepts in chemical reactions and molar calculations. Students also use an online simulation to explore the relationships between moles, temperature, pressure, and volume in order to derive the gas law equations.

### **Science, Physics, Cornerstone 3, "Grade Waves"**

Students utilize articles to learn the aspects of waves that impact the earth's crust in the form of earthquakes. Students simulate these waves using slinkies and calculate wave speed. Students also analyze the possible destructive forces of these waves.

### **Science, Biology, Cornerstone 4, "Meiosis"**

Students mimic the processes of meiosis and fertilization to investigate the inheritance of multiple genes and then use their understanding of concepts such as dominant/recessive alleles, incomplete dominance, sex-linked inheritance, and epistasis to interpret the results of the simulation. Students evaluate the strengths and weaknesses of this simulation as a model for understanding inheritance.

### **Science, Chemistry, Cornerstone 4, "Sub Zero!"**

Students use their understanding of thermodynamics to make a claim stating whether the chemical process tested could be considered a viable and safe option for use as hand warmer components. The claim should take into account the process's ability to produce heat, the quantity of reactants required, and the safety of the compounds required to achieve sufficient temperature change.

### **Science, Physics, Cornerstone 4, "Electrostatic Forces"**

Electrostatic forces can be observed almost every day. From clothes in a dryer to taming a 'static' hair style, we observe the effects of electrostatic forces all around us. What causes these effects? Students use physics to understand this phenomenon both qualitatively and quantitatively. In this Cornerstone, students explore the electrostatic forces on cellophane tape and in a computer simulation. They also examine patterns in collected data to develop an equation that explains those observed patterns.

### **Social Studies, U.S. History, Cornerstone 1, "Washington/DuBois Paideia Seminar"**

Students examine the writings of Booker T. Washington and W.E.B. DuBois to inform a Paideia seminar discussion on competing approaches to achieving equality for African Americans during the Progressive Era. After the seminar, students write a reflection.

### **Social Studies, World History I, Cornerstone 1, "The Codes that Guide Us BLISS Module"**

What principles guide the way we live? After reading the Jozei Code and Bushido Code and researching and reading relevant sources, students write an essay in which they compare Japanese codes to the "codes" of their own cultures.

### **Social Studies, World History II, Cornerstone 1, "Industrial Revolutions BLISS Module"**

Using primary source documents, students write an information/explanatory essay describing the impact of the Industrial Revolution on the lives of children in Britain.

### **Social Studies, U.S. History, Cornerstone 2, "New Deal BLISS Module"**

After researching primary and secondary sources on a specific New Deal program, students write an informational/explanatory essay in which they

compare the benefits and drawbacks of the program and argue whether or not it was a good plan.

### **Social Studies, World History I, Cornerstone 2, "Islam Paideia Seminar"**

After analyzing the passages from the Quran and the Hadith, students engage in dialogue about the development of Islam and its relationship to the world's other major religions. Students choose between writing a letter to the editor of a major newspaper or writing an article to a religious journal that presents the core tenets of Islam as informed by the text, and discusses how these beliefs reflect common themes in many of the world's "wisdom traditions" (Judaism and Christianity), and in what respects they are distinctly Islamic.

### **Social Studies, World History II, Cornerstone 2, "Kristallnacht Paideia Seminar"**

Through close reading of secondary and primary sources, participation in a Paideia Seminar, and completion of a post-seminar self-reflection, students learn about the Holocaust generally and Kristallnacht specifically.

### **Social Studies, U.S. History, Cornerstone 3, "World War II Entry Debate"**

Students examine a variety of primary sources to prepare for a debate about the question, "Should the United States have entered World War II before the bombing of Pearl Harbor?" After participating in the debate about U.S. entry into WWII, students write a reflection to answer the question, "Should the U.S. be involved in foreign wars?"

### **Social Studies, World History I, Cornerstone 3, "Feudalism Simulation"**

Students participate in a simulation activity focusing on the structure of manorial society. After participating in the simulation, students analyze excerpts of primary source documents and create an evaluative written response.

### **Social Studies, World History II, Cornerstone 3, "Causes of the Cold War BLISS Module"**

Tensions between the East and West started long before the Berlin Blockade in 1947. Although they were wartime Allies, the American and Soviet experiences in World War II were significantly different. These differences greatly impacted their visions for a post-war world. With no common enemy, competing goals, and radically different systems of government, conflict erupted – conflict that would extend 40 years and become known as the Cold War. This module gives students multiple opportunities to evaluate complex written arguments for their use of evidence and overall persuasiveness. In addition, students are encouraged to make their own interpretations using evidence from documents to support their claims.

### **Social Studies, U.S. History, Cornerstone 4, "Civil Rights BLISS Module"**

The Civil Rights Movement too often focuses on the big names and events – Martin Luther King, Jr., Rosa Parks, the March on Washington – but what made the Civil Rights Movement was the work of myriad people, many of whom are not famous. In this module, students look not only at the major events of the Civil Rights Movement, but also at the common experiences that drove the undertaking. From Ralph Abernathy's personal experiences as a Freedom Rider to Andrew Goodman's Freedom Summer application, the students examine numerous primary sources to get a real sense of the

activities, emotions, and attitudes of the hundreds of thousands who not only attended marches, but also decided to start their own sit-ins.

#### **Social Studies, World History I, Cornerstone 4, “Enlightening Revolutions BLISS Module”**

Do actions speak louder than words? After reading Enlightenment philosophies and their interpretations by Thomas Jefferson, Toussaint L’Ouverture, and Simón Bolívar, students write an argumentative essay that discusses the influence of Enlightenment ideas on the thoughts and actions of these leaders and evaluates the extent to which their actions reflected the ideals of the Enlightenment.

#### **Social Studies, World History II, Cornerstone 4, “Taking Action in Africa Project”**

Students identify a challenge in Africa and propose a student action that addresses it. In a written statement, students create arguments that justify their choices and evaluate the costs and benefits. As an optional extension, students can present their essays to their classmates, pick a project and complete it.

#### **World Languages, Level 1, Cornerstone 1, “Social Media - #MyProfile”**

Using the target language, students create a mock social media profile with basic information about themselves, such as name, age, date of birth, nationality, residence, favorite activities, and more. At the end of the activity, students guess who is represented in the profiles by reading the profiles without names and pictures.

#### **World Languages, Level 2, Cornerstone 1, “Biography”**

Students engage collaboratively and independently with a series of target language texts, with each lesson further developing proficiency and confidence in the target language. Students also develop web-based research skills and apply their findings to the creation of two original texts.

#### **World Languages, Level 3, Cornerstone 1, “Protecting the Environment: One Trip at a Time”**

Students use their knowledge about traveling and the environment to design an advertisement. They create an advertisement for a target-language country encouraging people to travel in an eco-friendly manner.

#### **World Languages, Level 1, Cornerstone 2, “Path Quest”**

Students explore the pathway from school to career. They reflect on what components or qualities are necessary to successfully achieve their professional goals. They learn what infographics are, and create their own “PathQuest” infographic that includes images and vocabulary in the target language on personality traits, school subjects, extracurricular activities, and educational requirements necessary for their future profession.

#### **World Languages, Level 2, Cornerstone 2, “The Best Thing I Ever Ate”**

Using the target language, students pretend they are starring on the Food Network show “The Best Thing I Ever Ate,” and describe their favorite food, where they found it, and why it’s so delicious. At the end of the unit, students create an entire “episode” of the “Best Thing I Ever Ate” that they can take home.

#### **World Languages, Level 3, Cornerstone 2, “Storytelling: Why is the Sky Blue?”**

Students explore several folktales from around the world and learn about the tales that exist in selected countries. Students use their knowledge about folktales to write their own story that reflects their own culture norms/values/communal knowledge. Students also use their own story to retell it in the style of an oral folktale.

#### **World Languages, Level 1, Cornerstone 3, “Home Sweet Home”**

Students present their home or the home of their dreams in the target language, and engage in meaningful communication. Every student has the opportunity to create a floor plan of their home, either online or by drawing or using legos. Each student provides information about their home such as number and type of rooms, furniture, rooms related to family members and family activities, what they love about their room and their home. At the end of the unit, students play a class game where they match each description with the right picture/model.

#### **World Languages, Level 2, Cornerstone 3, “Welcome to Washington, D.C.!”**

Students engage both collaboratively and independently with a series of target language authentic resources, with each lesson further developing proficiency and confidence with the interpretive, interpersonal, and presentational modes of communication. Students also develop web-based research skills and apply their findings to the creation of an original travel brochure that highlights notable features of Washington, D.C.

#### **World Languages, Level 3, Cornerstone 3, “To Our Health! Personal Well-Being and Public Health”**

This Cornerstone encourages students to identify health issues (both public and personal) that affect people in their communities. They explore whether the same issues affect their peers in various places where the target language is spoken, and examine the factors behind these similarities and differences. Students compose an email in the target language to obtain information/materials about one of the issues being studied. Finally, students create a public service announcement (visual document and video) in the target language to share information and/or encourage good health habits.

#### **World Languages, Level 1, Cornerstone 4, “Just a Taste: Food Vocabulary”**

Students take their knowledge of food vocabulary to create and write a real recipe. Students have the opportunity to practice food vocabulary, and to engage in research of a popular dish from a target language country.

#### **World Languages, Level 2, Cornerstone 4, “Global Aid: Serving Learning”**

Students identify a service learning project in the target language country. Students become familiar with the host country, where they will “participate” in their service learning project. After they have fully investigated the country and the project, students present their experience and how their service learning benefited the global community.

#### **World Languages, Level 3, Cornerstone 4, “My Dream Job”**

Students begin to explore potential careers or jobs for their future.





